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ABSTRACT

Preliminary guidelines are presented to provide a methodology for conducting user studies in the information field, particularly in developing countries. Topics covered include: user needs in planning a national information system; the identification of user groups; the design and organization of user studies, including background research survey objectives, resources, survey organization, selection of data collection methods, and sampling and response rate; data collection methods including documentary sources, diaries, questioning and observation; evaluation of data on information needs; and the nature and content of survey reports. Ten figures, 35 references, and an 11-item bibliography are provided. Appended are 11 sample questionnaires, designed for such audiences as the staff of educational institutions, library users, and small and large farms or establishments. (RBF)

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GUIDELINES ON STUDIES OF INFORMATION USERS
(PILOT VERSION)

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PREFACE

These guidelines have been prepared under contract by the Centre for Research on User Studies of the University of Sheffield (United Kingdom) in order to provide a methodology for the conduct of user studies in the information field, particularly in developing countries.

The guidelines are presented in preliminary form. They have not yet been tested extensively in the field and cannot be regarded as definitive. The present version has been edited by Messrs. Geoffrey Ford and Colin Harris, past and present Directors of the Centre for Research on User Studies. Chapter 1 is based on a study prepared by Mr. Joseph Becker, of Becker & Hayes Inc. (United States of America), and chapters 3 and 4 include a rearrangement of material prepared for the first draft of these guidelines by Mr. Keith Wilson-Davies, formerly Director of the Centre for Research on User Studies. The comments of a number of experts have also been incorporated; special mention should be made of the contributions of Mr. A. Abid (Unesco expert, Morocco), Mr. L. Eicher (United States of America), Mrs. B. Johnson de Vodanović (Chile), Mr. C. Keren (Israel), Mr. N. Kodagoda (Sri Lanka), Mr. J. Martyn (United Kingdom) and of Mr. M. Menou (France) who supplied a number of references as well as commenting in detail on the first draft.

It is hoped that the pilot guidelines can be widely read and tested in a diversity of real studies of users' information needs. Accounts of such testing and suggestions for improvement of the guidelines are most welcome. They should be addressed to the Division of the General Information Programme, Unesco, 7, place de Fontenoy, 75700 Paris, France.

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1. User needs in planning a national information system

Each nation has an important responsibility to husband its information resources for the purpose of developing its economy and enlightening its people. To be effective, however, such an effort must allow knowledge to be utilized simultaneously by individuals and by the aggregate society.

Structuring a national information system has a major effect upon a nation's future economic and social development. A well organized, carefully planned national information system can accelerate progress and enhance development. But a disorganized information system can lead to paralysis of decision-making and insufficiencies in national growth and culture.

The overall objective of a national information system is to enable countries to serve the reading, reference, and research needs of their populations. Since a country's population is usually heterogeneous, the planner's initial purpose must be to develop a basic understanding of the collective population and, later, to segment the population into meaningful subsets to be addressed individually according to predetermined priorities. The next step is to discover what particular types of information resource are most fitting for the country in question and how they should be assembled and organized.

Assessing the current and prospective information needs of an entire population is a complex process for which there is little precedent. It presupposes detailed knowledge on the part of the planner about his country's demography, population characteristics, direction of future growth, etc. Unfortunately, these data are not always available nor is the information planner normally skilled in all of the techniques needed to identify and analyse user needs comprehensively. He must, therefore, be prepared in some cases to make choices based on incomplete or inaccurate data, or else be ready to persuade others in his government to implement the data-collection procedures crucial to such decision-making.

In most countries, use of demographic data for planning national health or transporation systems is common. But in the information field, there is little evidence that demographic data and population projections have been rigorously and consistently applied to long-range planning of libraries, archives and other information services or institutions. Yet, the value and importance of using such data for planning at the national, provincial and local level cannot be over-stressed. These data, whether acknowledged or not, ultimately govern and regulate the growth of information at all levels within a country.

For national planning purposes, the word "user" refers to all potential beneficiaries of a national information system, and not just those who would be using the facilities at a certain time. Such potential beneficiaries include individuals, enterprises, government agencies, and other organizations that use information regularly to make informed decisions and to achieve particular goals. Indeed, potential users are nearly everyone:

> "Users are individuals, each with unique informational, educational, psychological and social needs. A person may need 'practical knowledge' to solve immediate problems in his daily life and work. He may need 'professional knowledge' to further his continuing education. Or he may need 'intellectual knowledge', the kind that furthers his understanding of the arts, humanities and sciences, and which enriches his personal life. Reading for pleasure, pursuing an innovative idea, or exploring knowledge just to satisfy one's innate curiosity, are other valid motives for reading, listening or looking. In addition, people feel the need for ethical, religious and philosophical insights.

> Organizations, like individuals, need information and knowledge. Business organizations need facts and data to forecast a market, develop a new product, or adapt a new technology. Schools need information to improve and extend the learning process. Research organizations need information to synthesize new data with known facts as part of the creative process. Government needs information at every level to formulate plans, refine decision-making, and help government workers to anticipate and resolve problems. ... It is clear that library and information needs are felt at all levels of society, regardless of an individual's location, social condition, or level or intellectual achievement. Although library and information needs are not the same in all parts of the country, and although they vary widely among people by age, ethnic origin, educational achievement, work assignment, geographic location, and many other factors, most people feel some dependence on the availability of accurate and useful information" (21).

Unfortunately, users are rarely directly involved in the initial planning and design of information systems. National information systems are usually started by documentalists, librarians, archivists and other information specialists. They are the ones who often persuade their government to initiate such a system, and who have the technical know-how needed to supervise its implementation, but may have little practical experience in systematic analysis of user needs. It is especially important in such cases that planners of information systems strive to anticipate user needs to the greatest extent possible.

Generally speaking, past user studies in developed countries have been confined to narrow groups and well-defined subject areas. For example, studies have been made of the information needs of medical doctors, chemists, engineers, and so forth. However, no accepted methodology currently exists for surveying and projecting user needs across an entire population.

The methodology outlined in this chapter is aimed at helping planners anticipate users' information needs according to the characteristics of their country. For example, in a developing country a national information system must be designed to facilitate improvements in general literacy and education, as well as serving specialized user groups.

The common methods employed for the collection of user data consist of questionnaires, interviews, sampling, market segmentation surveys, etc. However, these are always used in the context of studying an existing user group. The planning of a national information system to serve an entire population requires an additional dimension in data. Not only must the methodology be sensitive to the literacy rate and educational growth patterns of the country, but it must also take into account other factors such as national priorities, population projections, cultural history, demography, economic planning, and the rate at which the country intends to reach prescribed national objectives. National information system planning therefore requires prior knowledge of population statistics, of government goals and objectives, of educational development plans, of economic growth. Such sociometric data provide a solid foundation on which to build the system and a framework for setting priorities, making decisions, and taking action.

The planner must have verifiable facts and figures for two reasons: they enable him to weigh alternative courses of action logically, and they provide a valid basis on which to justify recommendations to the government.

What are some of the fundamental decisions the planner will be called upon to make? Basically, they concern budget, facilities and organization. The planner must recommend and defend a short- and a long-range financial level of government

support for the national information system. He must decide whether to build on existing facilities and how, or whether to recommend new ones and, if so, how many. He must determine the extent to which the system will be centrally managed. Should the libraries and documentation centres of government ministries, for example, be supervised by a central national information system authority? Or, should they be managed by their respective ministries?

Certain planning decisions like those on priorities, geographic distribution and education require considerable understanding of user needs. The planner must ascertain the relative importance of supporting libraries, archives and documentation centres by type of function. For example, what priority rankings should govern support to educational libraries, documentation centres, industrial libraries, regional archives and information analysis centres? And what priorities should govern the development of libraries as opposed to other classes of information centre? Above all, national objectives must be considered, and information system development should be synchronized with them. If, for example, the creation of a strong electronics industry is a major national objective, then the information system to support it should normally receive an equivalent priority.

The planner must also decide the issue of regional self-sufficiency. Should equivalent information facilities exist in each province or region or should the nation promote the networking concept? And he must settle on a programme of information science education which will ensure a steady flow of trained people who can operate the national information system effectively. He must develop user education programmes for increasing the utilization of libraries, archives and documentation centres.

Figure 1.1 contains examples of typical sociometric variables which can affect planning for a nation's information system. These variables and their corresponding planning implications are intended to be representative rather than comprehensive. But they do indicate the kinds of questions which must be answered from the outset to help the planner determine which subsets of a national population and of a national economy demand special attention in the evolution of a national information system.

The sociometric variables most relevant to the work of the national information system planner are those available to him from existing census, economic and educational report literature in his country. Primary sociometric data of this kind, however, is not present in every country. When this is the case, the planner obtains the best data he can by interviewing other government planners, holding group meetings with prospective users, and maintaining liaison with spokesmen for various population groups. Based on his research, in either case, the planner's first step is to produce a general document which identifies these variables and describes their probable effects on national information system planning.

Figure 1.1: Variables affecting planning of a national information system

TYPICAL SOCIOMETRIC VARIABLES	EXAMPLES OF PLANNING IMPLICATIONS
POPULATION How many people are there in the country? What is their distribution by age? By skill? By level of education? What proportions are adults? Young adults? Children? Where are they located? What proportion is concentrated in big cities? What is the projected rate of growth of the population? What proportion of the working force is professional? What proportion is clerical and technical? Which professions and occupations are most active in the country?	Knowing about population distribution and having demographic information about the country enables the planner to anticipate the need for new or expanded facilities and to determine their most useful location. It also serves as an indicator of the kinds of information which may need special support.
LITERACY RATE What is the literacy rate? At what rate is the literacy rate expected to increase? What is the relationship between age and reading level?	The planner can greatly assist the nation's drive for increased literacy by ensuring that local schools and libraries are adequately stocked with suitable materials for teaching people to read. Also, the literacy rate should be a major factor in determining the rate of library and documentation centre development in the country as a whole.
ECONOMIC SECTORS What are the major sectors of the economy? What is their current and projected importance in terms of national investment and development priorities? Which sectors are supported by major research and development efforts?	The priority sectors of the economy should be considered in terms of their specialized information needs, and perhaps should be served by specialized subsystems within the national information system. Major research and development sectors are likely to have particularly stringent requirements concerning volume, timeliness and diversity of information.

Thus, in summary, the planner's methodology proceeds as follows:

Step 1. He familiarizes himself in detail with overall national plans and objectives for the country as a whole.

Step 2. He analyses the impact which overall national plans will have on the current information infrastructure and on his emerging plan for the national information system.

Step 3. He identifies the critical decision issues which must be addressed in the evolution of a national information system.

Step 4. He locates, assembles and organizes the sociometric data that will support his judgements on critical decision issues.

Step 5. He identifies particular subsets of the population which will require special attention in his development plans. (The number and types of population subsets cannot be determined automatically, but are defined for convenience in system planning and development. Also, they will vary from country to country.) Once the subsets of users have been identified, and their known characteristics have been assembled, the planner will select certain user groups for in-depth surveys of user needs as appropriate.

Step 6. He takes an inventory of existing library, archives documentation and information facilities and staff in the country in order to measure the magnitude and nature of the new resources required to meet his objectives.

Step 7. He prepares a document which sets forth the goals and objectives, the priorities, the requirements and the justification for a plan that can be implemented in progressive phases.

Step 5 above is the one that is mainly concerned with identifying particular user groups within the population. This is considered in more detail in chapter 2. Once a user group has been identified for study, whether within the overall national planning process or, for example, within a given local or sectoral setting, the techniques for carrying out the actual user survey are well defined. These are described in chapters 3-6 of the present document.

2. The identification of groups of users

The key to successful information system design is the correct identification of user groups. A library or information analysis centre can only be successful if it has identified its user needs adequately, as well as adequately defining the groups of users which it does not intend to serve.

The first and obvious group to be considered are the users of existing libraries and information services. It is comparatively easy to assess their existing demands on the service, the degree to which these demands are met, and the users' reactions to the existing service.

The characteristics of existing users of a service can be compared with data on potential users: that is, persons who might have been expected to use the information service. By appropriate means it may be determined whether their reasons for not using the service are personal to themselves, or are due to imperfections in the information service which can be remedied. It should be recognized of course, that there are many ways of obtaining and using information: much information is transmitted informally, so that the monitoring of use of formal systems such as libraries can only give a partial picture of need.

A third group of people are those who can be identified as probably requiring information of one kind or another, but who are not provided for by an existing information service.

It is conventional to group users according to some major characteristic. The particular characteristic chosen will depend on local circumstances. It might be the subject field with which they are concerned, the organization for which they work, or their function.

It may be decided, for example, that the needs of persons working in health care should be investigated. Usually, this group consists of qualified medical personnel, persons undergoing training and untrained auxiliaries. Some will be working in hospitals or clinics with others of their profession, others may be working alone in remote locations. Since it is unlikely that a single library or information service will be appropriate for all their needs, some subdivision into smaller groups will probably be necessary. It might be decided that all persons working in a hospital are best served by a single library, regardless of their function or degree of training. On the other hand, doctors working in the field would require a different kind of service, and a survey of their needs could not reasonably be encompassed within a survey of the needs of hospital personnel.

The variety of needs which may be generated by persons with different functions within the same subject discipline can be seen from the general schema in figure 2.1, which in turn can be easily understood by considering the specific field of agriculture. The agricultural policy maker, being concerned with allocation of resources, will require digests of statistics - production, consumption and so on. What crops should be grown, what exported and imported, will depend on accurate and up-to-date knowledge of weather conditions, world markets, crop yields and prices. The administrator is responsible for converting the policy maker's decisions into procedures. He has to arrange the purchase of grain from another country, or the importation and distribution of fertilizers and so on. In agricultural terms, he must know which areas require nitrates and which lime; which produce surpluses of cereal crops and which produce surpluses of livestock. He may be responsible for the collection of data and for the preparation of the digests which the policy makers use.

Figure 2.1: Functions, information needs and corresponding documentation

Function	Information need	Type of document used
Policy maker	Evaluative	Digest
Administrator	Prescriptive	Rulebook
Researcher	Innovative	Research report
Teacher	Comparative	Review
Student	Instructive	Textbook
Practitioner	Practical	Manual

The researcher is responsible for investigating what kinds of agriculture are appropriate to the various local circumstances. To this end he requires information on ongoing and completed research carried out in other locations and detailed knowledge of his own country to enable him to apply the expertise gleaned from other

locations to his own. He may undertake experiments in crop raising, and the reports of his research in turn are of use to administrators, teachers and practitioners.

The teacher has wide information needs; he must draw on the results of research and practice from a wide area of knowledge if his students are to be properly prepared. The need to cover such a wide area means that the review article, journal or book is a great help, enabling him to keep up to date in his profession. Some teachers distil their knowledge to produce textbooks for the benefit of a wider audience than their own immediate students.

The student has two major information sources: his teacher and the textbooks recommended by his teacher.

The practitioner, in this case probably a farmer, relies to a great extent on the knowledge he gained as a student, and on his accumulated experience. When introducing new methods of crop raising or animal management he needs manuals to guide him in the right way of doing things, in order to reinforce any instruction he may have received from agricultural liaison officers.

Having identified the groups of information users of interest to national planning, their needs for information must be assessed in more detail. Before undertaking any large-scale surveys, it will be necessary to set priorities in accordance with the national plan and to make some realistic assessments of the resources which are likely to be available to implement changes and additions to existing information facilities. It will then be possible to determine what data must be collected and to organize investigations accordingly. The organization of user studies is discussed further in chapter 3.

It should be stressed that studies of users in themselves cannot give the planner all the data required to devise a national information system. To quote a report from the United States National Academy of Sciences:

> "Users of scientific and technical information are slow to change their habits of information use, usually learned in their formative years. As a consequence, there are strong tendencies toward 'in a rut' behaviour and toward apathetic responses to new and more effective services .... The lack of economic balance that results from the traditional pattern of conducting the work of science and technology together with apathy and great resistance to change under the usual test of the market-place /makes user study/ an insufficient guide to the need and value of information services ...." (20).

Part of the task of the decision-maker is to assess the user needs which are discovered by surveys and other means in terms of the various criteria (such as timeliness and relevance of information) for satisfying these needs through information services. This is further discussed in chapter 5.

3. The design and organization of user studies

In general, it is probably not feasible to undertake a single, all-embracing survey of national information needs. It is possible to undertake a number of surveys of subsets of the total population, and using this approach a picture of the overall needs can gradually be accumulated. It will be necessary to set priorities for the various surveys; these priorities can only be decided by the national planners by reference to the national plans for economic and social development, and by reference to the resources available for the provision of information services. If for example the national plan gives high priority to agricultural development, health services and the increase in literacy, and low priority to heavy industry, then surveys of information needs should reflect these priorities. Similarly, the data

gathered in a survey should relate to services which it will be possible to improve or introduce within a few years at most from the date of the survey.

The choice of methods of data collection must also be appropriate, both to the data to be collected and to the people whose needs are being surveyed. The information needs of peasant farmers may be of great importance to agricultural development, but it would be inappropriate to send a detailed questionnaire to a largely illiterate group. A group discussion combined with expert observation would be a more sensible approach to adopt in this situation.

3.1 Background research

In chapter 1, the need for an inventory of existing library and information facilities in a country has already been stated. One can now take this point a step further. Before undertaking any surveys of information needs, or collecting data on use of libraries, it is important that studies should be made of the general environment of information flow. Unless the researcher has a sound understanding, any research study runs the risk of obtaining inadequate and inappropriate data through asking the wrong questions of the population being studied. For example, a survey may show that many engineers read little technical literature, and this evidence may suggest (wrongly) that information is not important to the engineers' tasks. Adequate background research would have shown that the nature of many engineers' work encourages the flow of information by personal communication, and that extended reading of printed sources is not often necessary.

The working environment, then, is one important factor affecting information flow. Many information users work within an organization, and the hierarchy of the organization is also important. As an example of such a situation one could cite the case of an organization in which an information bulletin was prepared weekly and distributed to department chiefs; when a survey found that they made little use of the bulletin, the financial director suggested it should be discontinued. However, a sharp-witted assistant pointed out that nearly all the department chiefs passed their copies of the bulletin on to their assistants, who found it an invaluable source, so the bulletin continued, but with a different distribution list. The reason why department chiefs made so little use of the bulletin was that they had other sources of information, because they were closer to the decision-making process.

Information flow is a complex subject, and there are many interlinked factors which affect it. We have already mentioned the working environment; other factors include:

the purpose for which information is sought;

the educational background of the individual information user;

the nature of various information channels.

A full discussion is not possible in the present guidelines, and reference should be made to a recent review (7). Much valuable advice can also be obtained from talking with experts, both with those familiar with the subject-matter of the study and those experienced in conducting social research projects.

3.2 Survey objectives

The design of any user study project is contingent on three factors: the objectives of the study, the population to be studied, and the resources available for the study. We have already discussed, in chapter 2, the second of these factors, and we must now turn successively to the important questions of objectives and resources.

Establishing the objectives can take a long time, and this process involves three overlapping stages. In the first step, the general purpose of the survey is elaborated into a precise plan. For example, the "measurement of information seeking and use" is rather too imprecise as an investigative aim. One must clearly establish the purpose of the measurement, since the purpose will influence the design and structure of the investigation. Thus the aim could be refined to cover one or more of the following objectives:

(i) to obtain a detailed description of the use of a particular library or information centre;

(ii) to develop a predictive model of information use behaviour;

(iii) to assess the probable effects of changes in information provision;

(iv) to increase understanding of the reasons for using particular information sources; or

(v) to link information behaviour with other factors, such as work patterns.

There are of course other purposes for which user studies can be undertaken.

Having decided the precise objectives of the study, the second step is to list topics that relate to those objectives. If an objective is to increase understanding of the reasons for using particular information sources, the list of topics would include:

(i) the current availability of different information sources;

(ii) the content of different sources;

(iii) the cost of using different sources.

The third step is to derive a list of data required on each topic. One would need to know how often each information source was used; for what purpose it was needed by various categories of user; how easy or difficult to use the various sources were from the viewpoint of the users; and so on.

The procedure, then, is to start with the main objective(s), go on to a list of relevant topics and then to specify the data required. At each step a more detailed checklist is produced. At the conclusion of this stage, it will be possible to decide on the appropriate techniques for collecting the required data. Before a final decision is made, however, consideration must be given to the resources available for the study.

3.3 Resources

One cannot over-stress the importance of matching the research design to the resources available. Surveys involving interviews or postal questionnaires require many weeks of labour. Typically, in an interview study, much less than half the total time is spent in interviewing. Local circumstances will affect the precise timetable for a particular project, but Figures 3.1 and 3.2 may be taken as a rough guide.

Figure 3.1: Timetable for interview study*

Preliminary design, discussion with experts, sample selection	8 weeks
Design of questionnaire, pilot interviews, final design and printing	8 weeks
Field-work - approximately 3,000 interviews (75 interviewers)	6 weeks
Editing and coding data	10 weeks (overlaps with last 5 weeks of field-work)
Card punching, etc.	4 weeks
Total time before analysis stage	31 weeks

(*) Based on Hoinville and others (9).

Figure 3.2: Timetable for postal survey

Preliminary design, discussion with experts, sample selection	8 weeks
Design of questionnaire, pilot interviews, final design and printing	8 weeks
Distribution of questionnaires (1,000)*	1 week
Return of questionnaires*	9 weeks
Editing and coding data	10 weeks (overlaps with last 5 weeks of previous stage)
Card punching, etc.	2 weeks
Total time before analysis stage	33 weeks

(*) Assumes efficient postal service.

As will be seen a minimum of 7 to 8 months elapse before a set of data is available for analysis. These timetables are based on conditions existing in the United Kingdom, where good facilities are available, there is a good postal service, and

there is a pool of trained workers available. In a developing country where interviewers may need more training, and where the postal service may be less well developed, additional delays must be allowed. It would not be too generous to allow 12 months for a survey of this type.

The method of data analysis must be carefully considered. The timetables allow for punching the data on cards as it permits a much more detailed analysis, even if only by using a card sorter. Manual analysis is so time-consuming in the case of large surveys that mechanical aids such as card sorters or computers should be used wherever possible.

Each survey will require a budget and staff adapted to its own conditions and purposes. Figure 3.3 illustrates the sizeable staff resources and infrastructure needed for a typical large-scale interview survey, including two full-time professionals, one full-time secretary and various categories of temporary technical support. Although the staff requirements can be reduced for a small-scale survey the following resources can be considered as essential.

The survey director

The project director should have a high level of responsibility within the information system concerned as he will have to deal with senior staff of all government agencies and other establishments interested in the survey. In some cases the project director may be a person experienced in surveys; in other cases the project director may not have such experience, and in these circumstances it is important that he appoint an actual full-time survey director. In the remainder of the section, reference is made to the survey director, the person responsible for the conduct of the survey whether he is the project director or some other person.

It is essential that the survey director be a person with expertise in survey techniques. Ideally, he should also have experience in the subject-matter of the survey but this is not strictly necessary since a person with such experience can always be brought into the survey team on a consultancy basis.

Where there is a nominal project director and a survey director it is important that there be a clear-cut division of responsibilities. The survey director must be able to identify, in the early stages of the project, the problems and issues which will occur during the project; he is normally responsible for the general organization and decision-making in the survey and he must be willing to undertake some of the tedious work-load which will however be shared by his assistants in a large-scale survey.

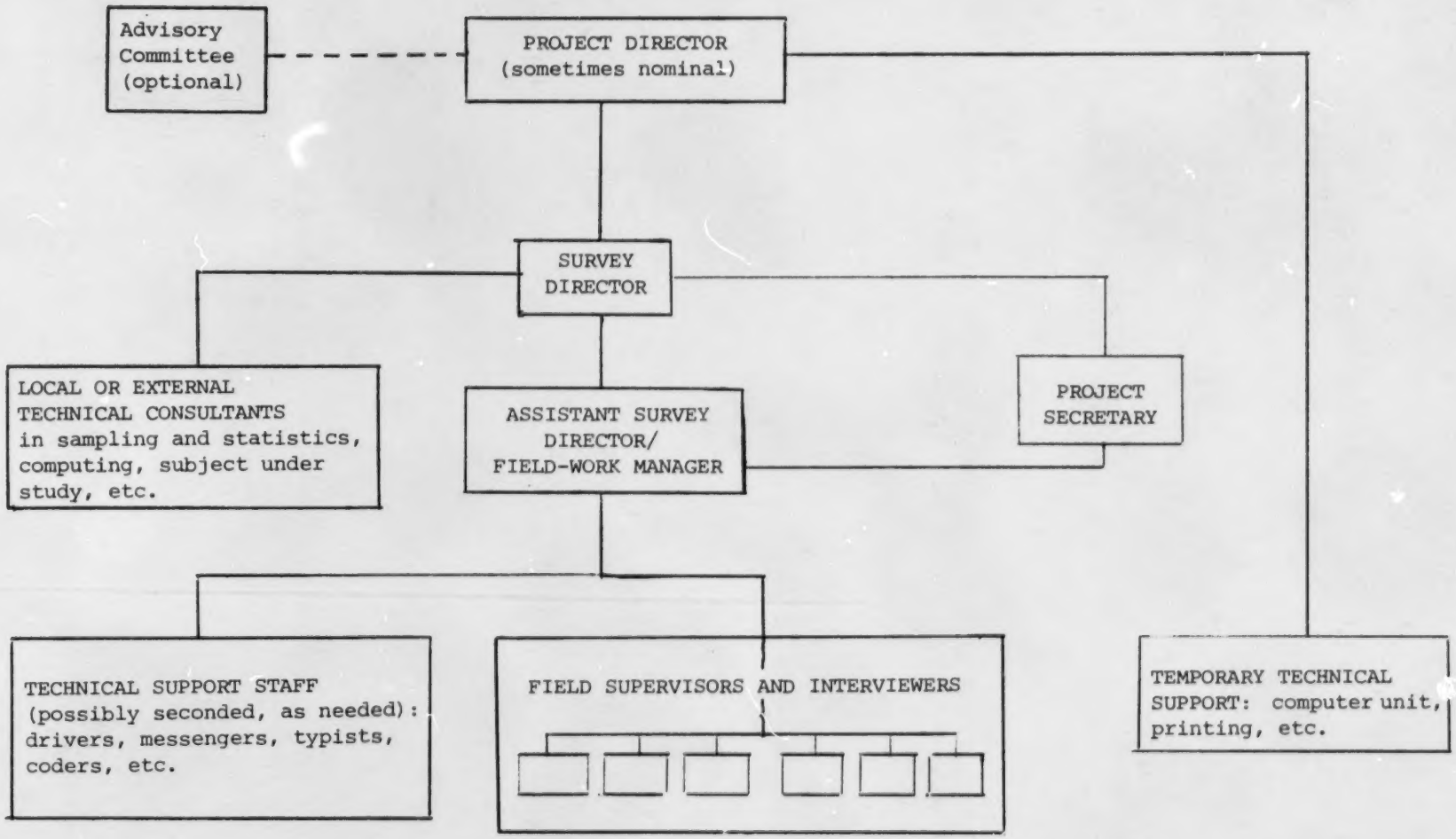
The project secretariat

The project secretary is a key figure since the quality of the physical production of the interview schedules and other documents is very dependent upon his or her skills. Consequently, a high level of secretarial ability is needed. In addition, this person should possess sufficient initiative to be able to organize appointments, as directed and, in the field stages, should be able to confirm interview times for the interviewers. In a large-scale survey additional support staff will be needed on a temporary basis to help in typing, coding and other tasks of the secretariat.

Interviewers

The interview method will often be chosen for data collection, depending of course on the particular survey envisaged (see chapter 4). In such cases interviewers

Figure 3.3: Survey staff structure (an example)


Advisory Committee (optional)
PROJECT DIRECTOR (sometimes nominal)
SURVEY DIRECTOR
LOCAL OR EXTERNAL TECHNICAL CONSULTANTS in sampling and statistics, computing, subject under study, etc.
ASSISTANT SURVEY DIRECTOR/ FIELD-WORK MANAGER
PROJECT SECRETARY
TECHNICAL SUPPORT STAFF (possibly seconded, as needed): drivers, messengers, typists, coders, etc.
FIELD SUPERVISORS AND INTERVIEWERS
TEMPORARY TECHNICAL SUPPORT: computer unit, printing, etc.

are needed only during the training, field research and data preparation stages of the project. Consequently, they will be temporary appointments. It is possible that experienced interviewers cannot be easily found and, therefore, staff must be chosen who are capable of acquiring rapidly the essential skills of the interviewer, namely: to follow the interview schedule rigorously, to probe intelligently, to develop good communication with the respondents without introducing bias and without exceeding the time allowed for the interview (1,25).

In some countries, much of the needed infrastructure will exist within the national information system or within a permanent national survey organization; in others, several organizations can co-operate in providing the required expertise. The essential point is that there must be a survey director to ensure that the organization and staff are set up when needed for the survey.

3.4 Organization of a survey

Once the survey objectives, the user population and the available resources have been agreed upon, it is important that the survey be organized and implemented with particular care. A summary of the stages in this process is provided below for reference:

1. Defining the research objectives, subject population and resources.
2. Establishing the staff structure
   (a) set up the research office
   (b) obtain space and materials
   (c) recruit office personnel
   (d) set up the organizational structure.
3. Selecting the data-collection techniques.
4. Preparing the timetable.
5. Designing the data-collection instruments.
6. Preparing other documents
   (a) interviewers' instructions
   (b) coding guides
   (c) control, expense, time sheets, etc.
7. Preparing for the analysis stage
   (a) establish contacts with statisticians and other experts
   (b) decide on type of analytical equipment
   (c) set up software and computing procedures.

8. Selecting the sample

   (a) select samples for all stages prior to final stage

   (b) assemble sampling frame (mapping if necessary)

   (c) select final stage sample.

9. Recruitment of field staff, coders, etc.

   (a) recruit supervisors and temporary staff

   (b) train field staff (if necessary).

10. Pilot survey.

11. Finalization of all documents and preparation of field staff assignments.

12. Briefing the field staff.

13. Field-work.

14. Editing and coding.

15. Data preparation.

16. Creation of data files.

17. Tabulation and analysis.

18. Report writing.

19. Publication of results.

Not all of these stages are necessary in all types of survey work.

Some countries may wish to establish a national co-ordinating committee to advise the project director and the executing agency on the survey. This committee could include professionals (whether nationals or international consultants) competent in the research aspects of the study and, perhaps, representatives of interested government ministries and other agencies concerned with providing and using information (such as educational establishments, enterprises or agricultural agencies, depending on the scope of the survey).

Whatever the actual organizational structure, the full-time personnel should be recruited at the beginning of the project while the temporary staff must wait until practical decisions, such as sample size, sampling points, type of questionnaire, etc., have been settled. But these must be decided early in the project and the temporary staff recruited and told the date on which they will be needed.

Some basic organizational problems involve the setting up of the survey offices physically - adequate office space must be obtained (bearing in mind that the office staff will not be at full complement until the coding/editing stage so that some large rooms with tables and chairs as well as the actual offices for permanent staff will be needed).

Some temporary support units such as the computer unit or printing section may not be actually a part of the survey organization but may exist as separate organizations. In these cases the survey director must establish good working relations with them and discuss the survey timetable with them to ensure that they have adequate prior warning of the forthcoming demands on them and, in the light of the demands upon them, to revise the survey timetable.

Reference may be made to suitable texts for details of sampling techniques, recruitment and training and the organization of surveys (9,13,15,19,26).

It should be stressed that the quality of a survey depends to a considerable degree on availability of experienced personnel. To this end, if external advisers are employed to conduct a survey of information needs, they should be required to train members of the local team in survey techniques so as to increase the national pool of qualified personnel for future work.

3.5 Selecting the data-collection methods

Basically, the data-collection technique is selected by specifying the type of data needed to answer the problem posed by the study, considering the available methods which might provide these data and choosing the most appropriate one. Experienced survey specialists agree that the key to this selection lies in the successful formulation of the research objectives (see section 3.2). When the research objectives have been properly defined, and the data requirements identified, the choice of data-collection methods is narrowed considerably; the final choice will depend on the experience of the investigator, the resources available, the demands each method makes upon the subjects of the study, and the skills and knowledge needed to analyse the data.

For example, the most effective method for study of library users might involve the use of personal interviews in the respondents' own homes, but finance and cost considerations might restrict the research team to use of the interview method on library users, defining a user as someone who enters the library, or even to an analysis of loan statistics only (the latter method avoids all the organizational and financial problems of field-work).

Information needs must be assessed in order that adequate information services may be provided. The first type of user study envisaged is often therefore an evaluation of existing services. For example, the analysis of library records will tell us how much the library services are being used. Then one must ask the users why they use a particular book, journal article or information service, and whether the item or service in question tells them what they want to know; to do this one must interview them or request that they complete questionnaires (6,31).

Having evaluated existing services, one can go on to improve them, or to design new services which will meet needs not already served. In studies to identify these needs the proposed clients may be asked (by questionnaire) how they do their work, why they need information, what information is required, where they get it and when it is needed. Diaries and observational methods (24,32,35) will assist in eliciting these data and may precede or reinforce a study using interviews or self-completed questionnaires.

One may then design a suitable service and implement it, but this is not the end; it is necessary to get feedback from the new service to ensure that it is actually serving the need it was designed to meet. It will be readily apparent that assessment of information needs is a continuing and evolutionary process; and that the choice of methods should be seen in this context.

Some general guidance has been offered here only in order that readers will not fall into the trap of collecting the data first and then trying to infer its meaning afterwards. Although chapter 4 reviews the various data-collection methods in more detail, careful reading of appropriate reference works (9,15) is nevertheless essential.

3.6 Sampling and response rate

Whatever data-collection method is selected the problem of choosing a representative sample on whom data should be collected and analysed will surely arise, unless one is in a position to cover the entire population of users under consideration. Sampling is a branch of statistics, and consultation of specialized works (9,13,15, 19,26) will be necessary if the study team does not already have the required experience. A few words of general guidance are offered here with a view to stimulating awareness of the nature of the problem.

One of the simplest methods of sampling is the "convenience" sample. Here the investigator simply takes the first (25,50, etc.) users that come along or studies a group which is easy to reach (for example, a group taking a particular class). Unfortunately, users selected in this way will probably not be representative of all the users in the group targeted for study.

To get a more representative picture of the total user group, an unbiased sample is needed. Such a sample is called a random or probability sample. In this kind of sample, users would be selected completely at random from the entire population of targeted users. In other words, each user has an equal chance of being part of the sample.

To obtain such a sample, the investigator must first carefully define the population of users the study is concerned with (see chapter 2). If a convenient list of this targeted group (called a sampling frame) can be found, it should be used. Such a list may contain additional information about the users that will be helpful in preparing for the study (either information directly pertinent to the study or information that may be helpful as background for future contacts with the users). The most current list available should be used. The investigator can then take every nth (10th, 50th, etc.) name on the list so as to obtain a sample of reasonable size.

Another method which is more appropriate if the list is suspected of not being random would be to number the users on the list. Numbers between 1 and the total number of users can then be selected from a table of random numbers. If no list is available, this method can still be used if each member of the targeted user population can be uniquely identified by a number.

To use the random numbers table, the investigator should decide how many digits of the table he will need to use. He can then select numbers at an appropriate interval to produce the needed sample size (for example, the second number in each block of five numbers might be used). If the same number occurs in this position more than once, it is only recorded once.

Appropriate reference works should be consulted to determine the size of the sample needed to get an acceptably small sampling error. One method commonly used to estimate the degree of statistical error produced by various sample sizes is through the standard deviation derived from a proportion formula (e.g. in order to double the precision obtained in a user characteristic one needs to quadruple the sample size).

In certain cases, the random sample (especially if time and resources prohibit using a large sample) may omit important subgroups of the targeted user group (for example, plant supervisors) because they are a relatively small proportion of the total targeted population. If this occurs or is anticipated, the sample should be stratified in a way that assures the adequate representation of all significant subgroups. Again, reference works should be consulted for methods of stratification and appropriate weighting of the different subgroups. At times, resource constraints may make it necessary to restrict the study to those subgroups judged most worth studying in terms of developmental goals.

But even if all segments of the group can be studied and the sample is properly stratified and drawn, lack of 100 per cent co-operation or response can bias the study results. For example, if all users who cannot read English fail to respond to a survey, a bias will be introduced into the final results; or telephone interviews may bias a study toward users with phones. Only careful planning can help to reduce such biases.

In practice it is not always possible to use random sampling methods, and sample size is often dictated by practical considerations such as the resources available for interviewing. With experience a decision on the sample can usually be made on the "feel" of the situation and a few rough calculations. However, it is still necessary to give serious thought to the sample in designing each user study.

4. Methods of data collection

This chapter is not a complete handbook of methods of data collection; but rather attempts to describe the various methods, and to discuss the strengths and weaknesses of each. Reference is made to other publications for further guidance.

User studies investigations can be regarded as a subgroup of the wider research discipline - social science - in that it, like the many constituent parts of the social sciences, is concerned with investigating people, and their activities, attitudes, opinions, values and interactions.

Thus the units of inquiry are people, whether as individuals, as members of a team or of larger groupings such as institutions, enterprises and government agencies. It should be pointed out that, when one speaks of finding out about individuals, one is not concerned with an individual as a sole object of inquiry, as is a psychiatrist, but as the unit of aggregation, a member of a group with characteristics in common.

Basically, in spite of the many techniques named in the literature, there are only four main methods of obtaining data about a group of people. These are:

(1) documentary sources;

(2) diaries;

(3) questioning;

(4) observation.

While this grouping is a useful classification it should not be thought that the categories are mutually exclusive. A combination of methods is often appropriate to make use of their different strengths, the advantage of one method making up for the disadvantage of another, and, indeed, a more comprehensive picture can often be gained by using one method in conjunction with another. For example, in interviewing surveys, an interviewer can, and indeed, should record observational details such as appearance of the respondent, state of the home or the locale, etc., as well as recording answers to the questions posed.

4.1 Documentary sources

In the first chapter, it was stressed that the investigator should make full use of existing sociometric data such as census returns before undertaking research on information needs. Similarly, the investigator should commence his study by examining existing records of use of library and information services. The amount of data which can be gleaned from library records is often immense (5).

Many libraries keep records of the books which users borrow from them; Figure 4.1 shows a typical form which borrowers must complete in order to borrow a book.

Figure 4.1: Typical library borrowing form

<table>
<tr><td>Class No.</td><td>Date Borrowed</td></tr>
<tr><td>Author</td><td rowspan="2">Borrower's Name
(in capitals)</td></tr>
<tr><td>Series</td></tr>
<tr><td colspan="2">Title and Volume Number</td></tr>
<tr><td>Department</td><td>Signature

.....</td></tr>
</table>

This form is typical of those found in university libraries and other similar institutions. Undergraduate students, post-graduate students and members of faculty may each be requested to fill in different forms so that borrowing records of different categories of user may be easily separated. Analysis of these borrowing records will reveal the number of books borrowed by each category of user, the number of books borrowed in each subject, the length of time for which a book was kept by a borrower and various other facts. The investigator will be able to compute simple ratios, such as the proportion of books owned by the library which have been borrowed, the proportion of books in each subject which are on loan at any time, and so on. These figures may show that there are shortages of books in some subjects as compared with others and further investigation may lead to changes in the acquisitions policy of the library to alleviate the shortage.

A second documentary source within the library is the record of inter-library loan transactions. Analysis of this record may show frequent requests for recent issues of a particular journal which the library might consider subscribing to; but we would stress once more that care is needed in the interpretation of documentary data of this kind. It may be more economical to continue to borrow a journal on inter-library loan than to subscribe to it. It may be necessary to question the users of the journal to discover the urgency with which they require access to the journal - whether it is essential to their work now, or whether it is required "sometime within the next few months". Recent research in the United Kingdom has shown

that many inter-library loan requests made by research workers are not really urgent (27). The same may not be true for other types of user - it is possible that field liaison officers in an agricultural service may need items with great urgency.

A third documentary source of evidence of library use is that provided by specialized library surveys including what is now generally called a "failure survey". In brief, users are asked to record details of the books they looked for in the library but failed to find. The investigators then determine the reasons for this failure. The analysis of these results may lead to changes in library policy or procedure. This type of investigation is described in detail elsewhere (29,30). Another class of library survey attempts to determine the usefulness of items in the collection. An example of a form used in such investigations is shown in Figure 4.2. Full instructions for this type of survey are given in a publication available from the British Centre for Library and Information Management at Loughborough University (2).

Figure 4.2: Library survey form

LIBRARY SURVEY

Please follow the instructions carefully.

This form is part of a library survey

The librarian would very much appreciate your help in carrying out a survey of monographs used within the library.

A. IF YOU HAVE FOUND THIS VOLUME OF USE TO YOUR STUDIES OR RESEARCH please place this form in the RED FOLDER located at the end of the stack.

B. IF YOU HAVE CONSULTED THIS MONOGRAPH BUT HAVE NOT FOUND IT OF USE TO YOUR STUDIES OR RESEARCH please place this form in the BLUE FOLDER located at the end of the stack.

MONOGRAPH REFERENCE NUMBER:

5/132

A final example of employing documentary sources for user studies is that of citation studies which rely on data on the references to literature included in papers written by scientists and others. Analysis of citations is a well-established technique, although the results must be interpreted with caution. A typical example of this type of study is that by Mitra (17). This is truly a documentary source of data - the document is a publication and the analysis of citations is done by an independent researcher to obtain clues to the information needs of the author. It should not be assumed that all the items cited have been read by the author; nor indeed that he has cited everything he has read.

The analysis of citations usually includes some examination of the publication dates of the items referred to; it is typical that most citations in physics and chemistry are to papers less than ten years old, while in the social sciences and biology there is a higher proportion of citations to older literature. The citation

analysis will thus show which books and journals, of what ages, are most relevant in the different subjects of interest. It is important to bear in mind, however, that authors cite usually those documents to which they have ready access. If they cite only the documents available in their local library, the library's stock will appear to be more useful than it is in truth. If, however, authors are consistently referring to documents not held by their local library, it may be desirable for the library to acquire those documents. Citation studies, then, should be used to indicate the desirability of documents not held by the local library.

4.2 Diaries

The diary method of gathering data about user access to information is among the oldest of methods, perhaps because it is so straightforward. Systematic self-observation is capable of yielding fine results. However, in practice the method is difficult to extend to a large number of users, none of whom is likely to be as deeply interested in observing and recording his own behaviour as is the person planning the national information system.

The essential feature of this method is that respondents keep a diary, either in written or in tape-recorded form. The recorded items are the events which are the object of the study. If the study is investigating needs then every time the respondent requires information, he records the circumstances of the need, the source of the information used and the applicability to his needs of the information found or used. If the need cannot be fulfilled, the alternative actions taken are noted.

The problems with the diary method include poor response; enthusiasm for filling in diaries quickly wanes and many respondents stop. Even when they continue, users may tend to fill in their diary at one period during a day such as just before finishing work, and not each time an information need is encountered. The quality of the data may diminish over time as entries become shorter.

Another criticism of the diary method is the risk of acquiring a biased user population. Working with a subset of users who volunteer to observe themselves (which tends to leave out, for example, busy people) is not equivalent to working with a randomly chosen sample.

The diary method, given these limitations, does give the investigator a feel for the information problems of people in given fields. It can of course only be used with literate members of the population. An example of a diary form is shown in Figure 4.3 and there are some published reports which describe the use of this technique (24,32).

Figure 4.4 is a diary form used when the diary keeper visits a library.

Figure 4.3: Diary form for general use by students

Day	(1) EDUCATIONAL TASK	(2) WRITTEN INFORMATION USED. Please describe carefully, see notes	(3) NONE Tick, if appropriate	(4) SOURCE OF KNOWLEDGE OF INFO. "BIT" Code: See Key	(5) SOURCE OF INFO. "BIT" Code: See Key	(6) EVALUATION OF INFO. "BIT" Code: See Key
	RESISTANCE & SAFE WORKING LIMITS OF CYLINDER HEAT COIL : DETAILS FROM D. SHAHU, RESEARCH OFFICER; RESEARCH GRANT PROPOSAL.	PREVIOUS PROPOSAL WRITTEN BY SELF.	✓	(k)	(g)	(a)
				(k)	(g)	(a)
	CHOOSE ADALA-AG-163 (THIN-FILM SENSORS).		✓	(k)	(L)	(a)
	RE-ALIGN OPTICS OF MACH-ZEHNDER INTERFEROMETER.	M. DIXON, S.M.E., CRANFIELD, SME/1223/MD/LB.		(c)	(f)	(c)
	" " " "	L.H. TANNER, ARC R & M No. 3091 & 3131, HMSO, 1959.		(g)	(L)	(c)
	GENERAL BACKGROUND READING	GIBBINGS, TYRING-MECHANICS.		(k)	(d)	(a)
	RE-ALIGN OPTICS OF MZI.	CHEN & BIEN, J. Phys. E., 1971		(g)	(L)	(L)
		L.H. TANNER, J. Sci Instrum., 1967		(k)	(g)	(L)
	INTERFEROMETRY & ANISOTROPIC FILMS.	SCHMIDT et al., IBM Tech., 1972		(f)	(L)	(a)
	INTERFEROMETRIC TECHNIQUES: REVIEW	GROH & RU-WANG, J. Phys. E., 1969		(g)	(L)	(c)
		SCHMIDT & FLETCHER, " " " , 1970		(g)	(L)	(c)
	RE-ALIGN OPTICS OF MZI : DISCUSSION WITH PROF PROBERT.		✓			(L)
	GENERAL BACKGROUND READING.	GIBBINGS, TYRING-MECHANICS		(k)	(d)	(a)
	" " "	SIMONSON, HEAT TRANSFER		(c)	(d)	(L)

KEY TO CODES

Column 4 Source of Knowledge of Information
(a) Reading lists
(b) Tutor, word of mouth
(c) Others, word of mouth
(d) Library, browsing round shelves
(e) Library, card index
(f) Library, published bibliographical tools
(g) Citations
(h) Other

Column 5 Source of Information
(a) Management Library
(b) Stafford Cripps Library
(c) Libraries off campus
(d) Personal Libraries
(e) Borrowed from others
(f) Tutors' Handouts or Photo Copies
(g) Other

Column 6 Evaluation of Information
(a) Definitely Useful
(b) Quite Useful
(c) Neither Useful nor Useless
(d) Slightly Useless
(e) Definitely Useless

Verbal Information
(Exclude formal class contact hours)
CONVERSATIONS WHICH ASSIST EDUCATIONAL TASK (IN OR OUT OF CRANFIELD)

YES ☑ NO ☐

If YES please describe:

See number (1) above

PAGES SHOULD BE RETURNED WEEKLY. PLEASE HAND IN EACH MONDAY MORNING

Please complete: Week ending 29 June 1975

OFFICIAL USE ONLY | Time Period | Quest No. | Panel No. | Categor

27

Figure 4.4: Diary form for use on library visit

(1) INTENTION OF VISIT. Code: See Key. *If your intention was either (a), (b) or (c) please describe carefully.* Indicate how many "intentions" are attempted per visit by underlining. (See notes)	(2) WHICH LIBRARY? Code: See Key	(3) DAY OF VISIT	(4) WHAT ACTION TAKEN IN ATTEMPTING (1)? Code: See Key. Record more than one code if appropriate	(5) DID YOU ACHIEVE INTENTION? Code: See Key	(6) ANY UNPLANNED BEHAVIOUR ON VISIT? Code: See Key. If "Y" please describe.
1) ARNOLD - AG - 165	(b)	M	(c)	N	Y. PHOTOCOPY OF NEW SCIENTIST ARTICLE ON UNIVERSITY RESEARCH REVIEW J. Fluid Mech, May 1976
2) ABOUL EL-WAHED, J. Heat Transfer, 1969 & BENNET & FLETCHER, J. Heat Transfer, 1970.	(b)	TU	(a)	Y	N
3) REQUEST 2 INTER & 1 BOOK VIA INTER-LIBRARY LOAN &	(b)	THU	(R)	Y	N
CHASE ARNOLD - AG - 165	(b)		(c)	D.K.	
CHECK ON WILTT'S BOOK	(b)		(d) & (a)	Y	
4) INFORMAL & SPARDING	(b)	F	(c)	Y	N.

Key to Codes

Column 1 Intention of Visit
(a) To obtain an item known about already _____
(b) To look for something on _____
(c) To return material
(d) To study
(e) Other _____

Column 2 Which Library?
(a) Management Library
(b) Stafford Cripps Library
(c) Other Cranfield Libraries

Column 4 Library "Behaviour"
(a) Went to shelves
(b) Went to restricted loan collection
(c) Went to issue desk
(d) Consulted card index (catalogue)
(e) Consulted published bibliographical tools
(f) Completed reservation slip
(g) Sought seat
(h) Went to inter-library loan service
(i) Asked query of library staff
(j) Other

Column 5 Achievement of Intention?
Y — Yes
N — No
D.K. — Don't Know

Column 6 Subsequent Behaviour
Y — Yes _____
N — No

OFFICIAL USE ONLY

Time Period	Quest No.	Panel No.	Case

28

29

PAGES SHOULD BE RETURNED WEEKLY. PLEASE HAND IN EACH MONDAY MORNING

Please complete:
Week ending 29 June

4.3 Questioning

Questioning and observational techniques differ from the diary in that a second person is partially or wholly involved in the role of the observer.

The questioning method has two main aspects: the schedule (list) of questions to be asked, and the method of asking the questions. We shall deal with each of these in turn.

4.3.1 The schedule of questions

The questions posed can be either open-ended or closed. In the former, the question allows the respondent to answer in his own words, e.g.:

Question: What is your opinion of microfiche?

Answer: _____

_____

In a closed question the answers are predetermined and the respondents' answer must be one of them, e.g.:

Question: What is your opinion of microfiche?

Answers:
1. It is a useful way of storing large amounts of data.
2. It is useful for giving access to periodical back-runs which are otherwise unavailable.
3. It hurts my eyes to read it.
4. No opinion.

In general, one can say that the open-ended question is used to obtain attitudes, opinions and facts that cannot be predicted. The closed questions are used when one is able to predict the sorts of answers that will be given, and one merely wishes to establish the frequency with which the given answers occur. In some surveys, an open-ended question is used when the questionnaire is being tested, and the answers received are used to formulate a closed question in the final version. The questionnaire as a whole can be structured, unstructured or semi-structured.

A structured questionnaire consists of closed questions and open-ended questions which are strictly worded and presented in a defined order.

In an unstructured questionnaire, there is no strict wording for the questions nor a pre-defined order; there is only a checklist to topics on which opinions are required.

In a semi-structured questionnaire, all the questions are not strictly worded but the order of topics to be covered is strictly defined.

Practical experience of actually compiling questionnaires is the best way to develop this skill as it is one that cannot easily be taught from books.

Every investigation presents new and different problems. Even when the investigator uses standard questionnaires devised by other researchers and in other surveys, it is necessary for the investigator to understand the problems involved in

questionnaire design. A standard questionnaire, to be generally useful, is of necessity not designed to meet the particular problems of any one specific country or area of inquiry; in many cases, the investigator may thus want to add questions, delete irrelevant ones, or choose between alternatives. Even where this is not desired, it will be necessary to reword questions to take account of local meanings and ways of stating things.

Because of these considerations, standard questionnaires usually take the form of a skeleton, a series of essential questions to which the researcher adds his own. In many cases, alternative forms are given since the conditions may differ markedly among different countries and regions, particularly with regard to economic and educational levels.

Another feature of some standard questionnaire sets is to have "modules", a module being a set of questions on a particular topic. This enables the investigator to choose and combine subject modules in order to "tailor" a questionnaire to his particular research objectives and situation. Specimen questionnaire modules are given in the Appendix.

There are some good texts available which detail the considerations necessary when designing schedules of questions, whether for personal interviews or for postal surveys (8,9,22,23).

4.3.2 Asking the questions

It will be apparent from the above that the method of asking the questions is closely linked with the schedule. Unstructured and semi-structured schedules can only be administered by interviewers, while structured schedules can be given to people to complete themselves, or can be used by interviewers.

Where there is a choice of method, one must take into consideration the degree of literacy of the population, the concentration of the population and the resources available to the investigator. If the investigator wishes to question a literate section of the population who are widely scattered geographically, then he will send schedules of questions to these people and they will complete the schedule and return them. He may do this even when the people to be investigated are not widely scattered.

When the population to be studied is not literate, or is unlikely to complete questionnaires, the interview method must be used.

In general the advantages of the self-completed questionnaire are:

cheapness;

avoidance of bias introduced by interviewers;

questions requiring considerable reflection by the respondents can be used;

scattered populations can be easily contacted.

The disadvantages include:

questions must be simple and easy to understand;

replies to questions cannot usually be checked with the respondent;

there is no evidence of the state of mind of the respondent;

the questionnaire can only be sent to people of a reasonable standard of literacy;

the response rate tends to be low compared with the interview method.

In some situations it is appropriate to interview respondents in groups. These group interviews will be unstructured or semi-structured. The method is used for research concerned with motive, attitudes and opinion.

This technique is most valuable when used in the exploratory or preliminary stage of a research project. It is extremely useful for indicating the actual language people use when discussing the topic informally; this ensures that when a questionnaire is being constructed, the wording of the actual questions used will be meaningful.

A senior survey worker should lead the discussion, because he has a wide knowledge of the research problem, and has learnt not to allow his own prejudices to guide the discussion. The interviews must be held in surroundings which are familiar to the participants: with a group of manual workers, a room in a private home in their own village is suitable.

The group should not consist of more than ten people. It is best to record the discussion by means of a tape-recorder.

There are a number of other points concerning group discussions which can be followed up in the literature (20).

As surveys of information needs in developing countries may often be limited to urban areas (or even to a capital city only), short telephone interviews might sometimes be used. The main advantage of the method is its low cost and its speedy execution. Telephone directories - especially in a capital city - are convenient sources for identifying certain special groups such as lawyers or doctors. A sample may be drawn quickly by taking every nth name in the directory. A telephone interview must be brief, and the questions asked must be clear and simple; despite this limitation, some basic factual information can be obtained in this way - for example, that relating to the use of various information services.

In addition, telephone calls may be used to make appointments for longer personal interviews. This method of approaching respondents may prove very efficient with persons who are busy or often absent. Telephone appointments may save much of the interviewer's time and speed up the execution of the survey.

Of course, the representativeness of telephone surveys is limited to the population listed in the directory, but this disadvantage is counterbalanced by its low cost - which may well be a crucial factor in developing countries.

The subject-matter of surveys is sometimes of a highly "delicate" nature, so that complete anonymity of the respondents is required if sincere and undistorted answers are to be obtained. Under such conditions, a postal survey in which the questionnaires are returned without the sender's name or address may bring more sincere answers than would have been obtained by interviewers. It should be noted that the feeling of anonymity cannot be secured fully in a personal interview - even if the interviewer assures the respondent that his answers will remain confidential.

4.4 Observation

Observation is the classic method of scientific inquiry. The accumulated knowledge of biologists, physicists, botanists, chemists and other natural scientists is built upon the foundation of centuries of systematic observations, much of it in natural surroundings rather than in the laboratory.

Systematic observation of people and their actions is a technique which can play an important part in any investigation provided that the research strategy is carefully thought out. It is not sufficient that the object to be observed (e.g. farms and farmers) is accessible. The observational method must also be:

suitable for investigation of the problem;

appropriate to the population under study;

reliable; and

objective.

In situations where the observations are made of an individual respondent, his actions, use of information sources, etc., the method is highly consuming in terms of time and more importantly, in terms of manpower; a one-to-one correspondence between observer and observed can only be used in small-scale, intensive studies, and this method is unsuited to the large-scale collection of data on information needs.

As an integral part of the questioning process, observation has a very valuable role to play. In addition, observation can be of great value in producing detailed case studies which may lead to hypotheses that can be tested by other methods.

The observer must have a prior plan of the required data, as the potential events and items which could be observed are so vast and often so amorphous that a structured observation guide is necessary - this is a list of items and events on which data is required.

A good recent example of the use of observational techniques in determining information needs will be found in the report by Wilson and Streatfield (33).

Figure 4.5 is an example of an observer's recording sheet, the columns being for the following data items:

1. Description: the activity being recorded.
2. Tally: one tick is placed here for each time the activity is noted.
3. Total: a total of the ticks recorded.
4. %: item 3 expressed as a percentage of the total activity recorded.

Figure 4.5: Library activity observation recording sheet

DAY _____ DATE _____ PERIOD _____

1. Description	2. Tally	3. Total	4. %
Reading		15	16.7
Writing		10	11.1
Searching shelves	1	6	6.7
Thinking		20	22.2
Walking about		15	16.7
Borrowing/returning books	11	2	2.2
Talking to librarian	111	3	3.3
Talking to person other than librarian	1,111	9	10.0
Absent		5	5.6
Other		5	5.6
	Total	90	100.1

5. The evaluation of data on information needs

The methods described in outline in the previous chapters can be used to select and gather a variety of appropriate data on users' information needs. These data must then be evaluated in order to draw conclusions for the development of information services.

A recent book (14) has summarized this aspect rather well for our present purposes:

> "If performance (effectiveness) of information facilities is defined as the extent to which these facilities satisfy user demands, the question arises as to how the demand for information can be measured so that information supply can be organized accordingly.

There is a series of dimensions in terms of which user demands are to be described. They also correspond to the aspects in view of which the performance of information systems and services is evaluated. Some examples /of these dimensions follow/:

relevance to the field on which information should be given (e.g. subject field, scientific discipline, scope of interest spectra, need profiles, problem area, etc.);

appropriateness of kinds of service (e.g. retrospective searching services, SDI services, abstracting services, bibliographies, lending, copy supply, data or literature reference procurement);

appropriateness of the forms of service (e.g. bibliographies as simple lists of titles, or with descriptors or with abstracts, etc.; excerpts of documents or complete texts, computer print-outs or microfiches or screen displays, etc.);

adequacy of the quantity of the desired kinds of services (e.g estimated number of requests for retrospective searches per unit of time, estimated number of subscribers to an SDI or abstracting service, desired quantity of such services (desired average number of references), e.g. the number of lendings per unit of time, amount of bibliographic information desired, of reproductions, etc., per unit of time, estimated number of people visiting the library per unit of time, etc.);

desired timeliness of information (e.g. age of references, speed of updating of the library stock, etc.);

desired speed of information transfer (e.g. the admissible or desired response time for retrospective searches, the frequency of supply in SDI or abstracting services; the maximum permissible waiting time of library users, the minimum permissible lending time per book, the maximum search time for references in catalogues, etc.);

adequacy of indices of selectivity of the information (e.g. relevance or recall ratios which the users regard as admissible);

adequacy of indices of completeness of transmitted information (e.g. the extent to which all information contained in a subject field and relevant for the users is stored in an information facility - the so-called 'coverage');

ease of using /facilities/ or the 'user friendliness' of the systems (e.g. revealed by the expenditure of time and money which the users /make/ if they want to avail themselves of the services of the information facilities: the so-called 'user effort', user comfort, etc.).

The list of such aspects (which assume different relative weights of importance in given cases) ... can be extended. By recording user needs in such a detailed way, quantitative indicators are gained for the performance (planning, designing, operation) of information facilities. Only in such a way can detailed indications about specific user needs be obtained. This information should support the formation of judgements about existing or planned information facilities, in response to questions like 'Which and how many references, data or documents are to be stored?' 'How extensive and how structured should the 'vocabulary' be (classifications, thesauri)?' 'How great should be the indexing

depth and the indexing time per document?' 'Of which kind and form should the services be?' 'How should a feedback relationship be organized with the users?' 'Which storage and retrieval techniques should be applied?' 'How much personnel, with which qualifications, is needed?' 'How much should the systems cost?', etc.

Only by defining the overall performance of services and the organization and structure of the information systems as a function of the performances under the various aspects, thus balancing the pros and cons of alternative designs, can the efficiency of such systems be measured and systematically improved".

The conclusions of the book are also relevant:

"What a good information system is, what relevant information is, how efficient a solution of a problem is, what policy to pursue in order to improve the infrastructure of a country's information supply - none of these questions have a definitive answer /which is/ objectively based on professional expertise or detached analysis. The answer depends upon one's view of the problem, one's interests and intentions, the standpoint one assumes, and there is no criterion as to which of the various views is the right one. .... In this situation the planning of information systems becomes a process of arguing and attempts to convince, rather than one of isolated measuring and computation.

It is a central task of future user research to stimulate and to enhance these processes of /dialogue/ about design and organization of information systems which consider their users as their partners".

This inevitably leads to the conclusion that the best way of defining users' needs is to establish a library/information system with a group of users willing to use it under real conditions. The use made of the system and the users' opinions would then be monitored by the methods outlined in previous sections of this manual. There are some good examples of this kind of experimental approach in the published literature (3,10,16,18).

As a final point on the analysis of data it should be stressed that, whenever numerical data is collected, it is necessary to analyse it by appropriate statistical methods. Many helpful reference works are available (4,11,12,15,26,34). Some aspects of statistical analysis are reviewed in the next chapter which provides guidance on how the results of a study should be reported.

6. The nature and content of survey reports

The reporting stage is an important one. Fortunately, the United Nations Statistical Office has made some recommendations on the preparation of survey reports (28), and parts of the relevant text are reproduced here.(1)

"The preliminary report

A preliminary report is often required to make available data of current interest as rapidly as possible; such results may relate to selected important /characteristics and are/ sometimes based on a subsample of the full sample. It should contain a brief statement concerning the survey methods and the limitations of the data.

---

(1) The full document contains seven sections: Section I is a brief introduction; Sections II to IV, which are quoted here, deal with the contents of three types of report - preliminary, general and technical; Section V gives a brief description of common types of sampling and gives definitions for some technical terms; Section VI briefly describes methods of sample selection; and Section VII defines and explains terms used in statistical analysis.

As a very minimum, information should be given concerning the size of the sample, the method of selecting the sample and the discrepancies observed between external and internal data. Fuller details can be given in the general and technical reports on the survey.

The general report

This should contain a general description of the survey for the use of those who are primarily interested in the results rather than in the technical statistical aspects of the sample design, execution and analysis. The general description should include information on the following points:

1. Statement of purposes of the survey: A general indication should be given of the purposes of the survey, the 'margin of error' which would be permissible for the purposes of the survey, and the ways in which it is expected that the results will be utilized. ....

2. Description of the coverage: An exact description should be given of the geographic region or branch of the economy or social group or other categories of constituent parts of a population covered by the survey. In a survey of a human population, for example, it is necessary to specify whether such categories as hotel residents, /residents of/ institutions (e.g. boarding houses, sanatoria), persons without fixed abode, military personnel, were included, and to indicate /roughly/ the categories omitted. The reporter should guard against any possible /misunderstanding/ regarding the coverage of the survey.

3. Collection of information: The nature of the information collected should be reported in considerable detail, including a statement of items of information collected but not reported upon. The inclusion of copies of the questionnaire or other schedules, and relevant parts of the instructions used in the survey (including special rules for coding and classifying) is of great value, and such documents should therefore be reproduced in the report if possible. ....

The method of collection should be reported, together with the nature of steps taken to ensure that the information is as complete as possible (e.g. methods of dealing with non-response). The extent and causes of non-response, etc., should be stated.

It is of importance to describe the type and number of investigators, e.g. whether whole or part time, permanent or temporary, with particulars of their training and qualifications.

4. Repetition: It is important to state whether the survey is an isolated one or is one of a series of similar surveys. Where the survey is repetitive and some of the sampling units reappear in the successive stages, this should be stated.

5. Numerical results: A general indication should be given of the methods followed in the derivation of the numerical results. Particulars should be given of methods of weighting and of any supplementary information utilized, for example, to obtain ratio estimates. Any special methods of allowing for non-response should be described.

6. Date and duration: There are two periods of time which are important for any survey: (i) the period to which data refer, or reference period; (ii) period of collection, that is, the period taken for the field-work. ....

7. Accuracy: A general indication of the accuracy attained should be given and a distinction should be made between sampling errors and non-sampling errors.

8. Cost: An indication should be given of the cost of the survey, under such headings as preliminary work, field investigations, analysis, etc. Resources used in the conduct of the survey but not included in the costs should be stated.

9. Assessment: The extent to which the purposes of the survey were fulfilled should be assessed.

10. Responsibility: The names of the organizations sponsoring and conducting the survey should be stated.

11. References: References should be given to any available reports or papers relating to the survey.

The technical report

Technical reports should be issued for surveys of particular importance and those using new techniques and procedures of special interest. In addition to covering such fundamental points as the purposes of the survey, conditions to be fulfilled and resources available for the survey, the report should deal with technical statistical aspects of the sampling design, execution and analysis; the operational and other special aspects should also be fully covered.

1. Specification of the frame: A detailed account of the specification of the frame should be given; this should define the geographic areas and categories of material included and the date and source of the frame. If the frame has been adapted or constructed ab initio, the method of adaptation or construction should be described. Particulars should be given of any known or suspected deficiencies.

2. Design of the survey: The sampling design should be carefully specified, including details such as types of sampling unit, sampling fractions, particulars of stratification, etc. The procedure used in selecting sampling units should be described, and if it is not by random selection, the reporter should indicate the evidence on which he relies for adopting an alternative procedure.

3. Personnel and equipment: It is desirable to give an account of the organization of the personnel employed in collecting, processing and tabulating the primary data, together with information regarding their previous training and experience. Arrangements for training, inspection and supervision of the staff should be explained; as also should methods of checking the accuracy of the primary data at the points of collection. A brief mention of the equipment used is frequently of value to readers of the report.

4. Statistical analysis and computational procedure: The statistical methods followed in the compilation of the final summary tables from the primary data should be described. If any more elaborate processes of estimation than simple totals and means have been used, the methods followed should be explained, the relevant formulae being reproduced where necessary.

It frequently happens that quantities of which estimates are required do not correspond exactly to those observed .... . In such cases adjustments may have to be made, the amount of which is estimated by subsidiary observations, or otherwise. An account should be given of the nature of these adjustments and the ways in which they were derived.

The steps taken to ensure the elimination of gross errors from the primary data (by scrutiny, sample checks, etc.) and to ensure the accuracy of the subsequent calculations should be indicated in detail. Mention should be made of the methods of processing the data (punched cards, hand tabulation, etc.) including methods used for the control of errors. ....

The amount of tabular matter included in the report, and the extent to which the results are discussed, will depend on the purposes of the report. If a critical statistical analysis of the results embodied in the final summary tables has been made, it is important that the methods followed should be fully described. Numerical examples are often of assistance in making the procedure clear. Mention should be made of further tabulations which have been prepared but are not included in the report, and also of critical statistical analyses which failed to yield results of interest and which are therefore not considered to be worth reporting in detail.

The inclusion of additional numerical information which is not of immediate relevance to the report but which will enable subsequent workers to carry out critical statistical analyses which appear to them to be of interest should be carefully considered. ....

5. Accuracy of the survey:

(i) Precision as indicated by the random sampling errors deducible from the survey: Standard deviations of sampling units should be given in addition to such standard errors (of means, totals, etc.) as are of interest. The process of deducing these estimates of error should be made entirely clear. ....

(ii) Degree of agreement observed between independent investigators covering the same material: Such comparison will be possible only when interpenetrating samples have been used, or when checks have been imposed on part of the survey. It is only by these means that the survey can provide an objective test of possible personal equations (differential bias among the investigators). Any such comparisons or checks should be fully reported.

(iii) Other non-sampling errors: The existence and possible effects of non-sampling errors on the accuracy of the results, and of incompleteness in the recorded information (e.g., non-response, lack of records, whether covering the whole of the survey or particular areas or categories of the material), should be fully discussed. Any special checks instituted to control and determine the magnitude of these errors should be described, and the results reported. ....

6. Accuracy, completeness and adequacy of the frame: The accuracy of the frame (see point 1 above) can and should be checked and corrected automatically in the course of the inquiry, and such checks afford useful guidance for the future. Its completeness and adequacy cannot be judged by internal evidence alone. Thus, complete omission of a geographic region or the complete or partial omission of any particular class of the material intended to be covered cannot be discovered by the inquiry itself and auxiliary investigations have often to be made. These should be put on record, indicating the extent of inaccuracy which may be ascribable to such defects.

7. Comparisons with other sources of information: Every reasonable effort should be made to provide comparisons with other independent sources of

information. Such comparisons should be reported along with the other results, and the significant differences should be discussed. The object of this is not to throw light on the sampling error, since a well-designed survey provides adequate internal estimates of such errors, but rather to gain knowledge of biases, and other non-random errors.

Disagreement between results of a sample survey and other independent sources may of course sometimes be due, in whole or in part, to differences in concepts and definitions or to errors in the information from other sources.

8. Costing analysis: The sampling method can often supply the required information with greater speed and at lower cost than a complete enumeration. For this reason, information on the costs involved in sample surveys is of particular value for the development of sample surveys within a country and is also of help to other countries.

It is therefore recommended that fairly detailed information should be given on costs of sample surveys. Costing information should be given under such headings as planning (showing separately the cost of pilot studies), field-work, supervision, processing, analysis and overhead costs. In addition, labour costs in man-weeks of different grades of staff and also time required for interviewing, travel and transport costs should be given. The collection of such information is often worth while, since it may suggest methods of economizing in the planning of future surveys. ....

9. Efficiency: The results of a survey often provide information which enables investigations to be made on the efficiency of the sampling designs, in relation to other sampling designs which might have been used in the survey. The results of any such investigations should be reported. ....

10. Observations of technicians: The critical observations of technicians in regard to the survey, or any part of it, should be given. These observations will help others to improve their operations".

With respect to the above United Nations recommendations, several points appropriate to the present guidelines can usefully be emphasized. Special attention should be given to the first sentence of paragraph 1 under the general report. The investigator himself may have been interested in the subject of the survey for so long that nothing seems to him more natural than to have undertaken the inquiry; but for the reader it is otherwise. He may genuinely wonder why anyone should want the information the survey has provided or why the subject should have been approached as it was. It is the responsibility of the investigator to fully explain his purpose and approach.

The detail and form in which the results are presented will vary with each survey, and the report writer who is inexperienced in these matters should acquaint himself with the principles of presenting statistical information: how to arrange tables, what symbols to use, how much accuracy to give in the figures, what diagrams to employ for different purposes, and so on. In addition to the numerical data, it should be stressed that non-quantified material has a useful place in every social survey report. To many readers, statistical tables are dull and difficult to comprehend, and a certain amount of verbatim quotation of answers, as well as verbal summary of the tables, enlivens the report and makes it easier to digest.

The presentation of sampling errors sometimes causes awkwardness. To accompany each figure by its corresponding standard error satisfies the most rigorous requirements but hardly makes for easy reading. On the other hand, if one simply gives

details of sample size and leaves it to the reader to estimate any sampling errors he may be interested in - probably by using the simple random sampling formulae together with his own evaluation of the likely value of the design effect for the complex sample employed - an undeserved burden is imposed on the reader. There are some useful compromises which are described in appropriate reference works (e.g., section 14.1 of reference (13)).

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APPENDIX

Examples of questionnaires

It must be remembered that the questionnaires presented here are only examples to be used for guidance and adaptation. Each particular user-studies project will require its own specific questionnaire, and the format will depend upon the collection method (self-completion questionnaire or interview), characteristics of the population and country, subject, and use of the results after the data-collection phase. The questions to be asked will depend primarily upon the subject-matter and the population questioned while the layout, wording, etc., will depend upon the population as well as the other factors outlined above.

The examples are given in a module format so that they can be used separately or in combination as is necessary, given the particular problems, objectives and characteristics of a specific study.

Module A is the personal data section and can be used for staff of educational institutions.

Module B is to elucidate information use and needs for persons who teach, while

Module C is for people who undertake research, yet work in an educational establishment. An investigation of university lecturers would use both Modules B and C.

Module D is for staff in establishments other than educational ones such as companies, administrations, and so on, and it collects their basic data.

Module E is designed to collect data on the information use and seeking habits of people in those establishments for which Module D would be used.

Module F is an example of a hand-out questionnaire for library users.

Module G collects information about the community characteristics and is designed mainly for rural areas.

Module H is a household questionnaire.

Module I is designed to collect information from the small farm type of establishment, while

Module J is designed for the large agricultural establishment (plantation, branch of national or international concern, etc.).

Module K is an example of a contact sheet (i.e., the first page) for an interviewer-administered questionnaire, this particular sheet is designed for a household survey, though, with modifications, it could be used for establishments.

MODULE A - Basic personal data - educational staff

Office use only

Questionnaire No.

1. Name:

2. Institution:

3. Age on last birthday (in years):

4. Academic or professional qualifications (in chronological order):

	Qualification	Date taken	Subject(s)	Institution
(a)				
(b)				
(c)				
(d)				
(e)				

5. (a) What is your present post?

   (b) How long have you been in it?

6. (a) Have you worked in any post other than an educational/academic one?

   YES ☐ NO ☐

   (b) IF YES, what type of work was it?

   How long did you do it?

7. In which activities are you engaged during this academic year and how many hours do you spend on them in an average week?

   (a) Preparation of lectures/lessons/seminars ☐
   (b) Giving lectures/lessons/seminars ☐
   (c) Guidance of students ☐
   (d) Administrative duties ☐
   (e) Your own research ☐
   (f) Other (please specify) ☐

8. Do you belong to any societies, organizations, professional bodies, etc., in connection with your work?

   YES ☐ NO ☐

   IF YES, please list them:

MODULE B - Information use and needs in teaching

Office use only

1. What subjects are you teaching in the current academic year, how many students do you have and what is the level (year) of the course?

Subject	No. of students	Level (year) of course
(a)		
(b)		
(c)		
(d)		
(e)		

What teaching methods do you use (tick all applicable):

Lectures/lessons	☐	Seminars (small groups)	☐
Tutorials (1 or 2 students)	☐	Practical/lab. work	☐
Other	☐	(Please specify) _____	

3. Have you used any of the following during the current academic year to obtain information in order to prepare your lectures/ lessons/seminars? (TICK ALL THAT APPLY)

Books	☐	Govt. or official publications	☐
Collected readings	☐	Dictionairies/directories/ reference works	☐
Conference proceedings	☐	Periodicals/journals/reprints	☐
Research reports/theses	☐	Newspapers (daily or weekly)	☐
Own files	☐	Internally generated (memos, etc.)	☐

4. What other forms of information have you used?

(Prompt: microfiche, microforms, maps, television, audio-visual material):

None ☐

Office use only

5. Please rate the following sources according to their usefulness to you in teaching. If any are not available, but would be useful, please indicate in the column headed "Not available".

	Very useful	Useful	Don't know	Not useful	Not available
Periodicals, journals					
Books					
Research reports					
Proceedings of conferences					
Maps					
Films and other audio-visual material					
Newspapers					
Reference books					
Microcopies					
Monographs and pamphlets					
Government publications and official statistics					
Personal contacts, friends					

6. Do you keep a personal indexing system for material relevant to your teaching?

YES ☐ NO ☐

7. Have you received any useful references from friends, colleagues or other personal contacts during the last academic year?

IF NO, go to question 8.

IF YES, were these useful for your research? ☐

for your teaching? ☐

Office use only

8. Have you used any of the following guides during the current academic year to obtain information relevant to your teaching? (TICK EACH ONE)

	YES	NO
References or bibliographies in books and periodicals	☐	☐
Book reviews	☐	☐
Specialized bibliographies, especially published	☐	☐
Abstracting or indexing journals	☐	☐
Commercially produced information services	☐	☐
Government information services	☐	☐
Library catalogue	☐	☐
Reading lists, bibliographies produced by library staff	☐	☐
Current awareness service	☐	☐
SDI	☐	☐
Fact sheets and subject guides	☐	☐
Publishers' lists	☐	☐

9. Which journals and periodicals (including newspapers) do you read <u>regularly</u> in connection with your teaching?

10. Which libraries have you used in connection with your teaching? Please list them in order of preference of use:

1.

2.

3.

4.

Office use only

11. How adequate is the bookstock of your own institution's library in terms of your own research?

Sufficient for all your requirements	☐
Sufficient for most of your requirements	☐
Sufficient for some of your requirements	☐
Sufficient for few of your requirements	☐
Sufficient for none of your requirements	☐
Haven't one, don't know, not available	☐

12. Which of the following library sources have you used in the last year in connection with your teaching?
(TICK ALL THAT APPLY)

Borrowing	☐
Borrowing periodicals, journals	☐
Consulting of library stack in library for reference/information	☐
Use of inter-library loan services	☐
Reservation of books (held by library)	☐
Provision of photocopies	☐
Information and inquiry services provided by library staff	☐
Information on location of books in other libraries	☐
Access to commercially produced information services	☐
Other (please specify)	☐

13. Are there any ways in which the library services could be improved to fill your teaching <u>needs</u>?

YES ☐ NO ☐

<u>IF YES</u>, in what ways?

Office use only

14. Are there any other information sources (libraries, periodicals, books, etc.) you would like to use?

YES ☐ NO ☐

IF YES, which ones?

15. How many books do you personally own in connection with your teaching duties?

NONE ☐
1-9 ☐
10-24 ☐
25-49 ☐
over 50 ☐

16. In connection with your teaching duties, how much did you spend in the last 12 months on books _____ periodicals _____ newspapers _____?

Other information sources _____ (please specify them):

17. Are there any comments you would like to make on the kind of information you need for your teaching:

MODULE C - Information use and needs in research

Office use only

1. What is the topic of your research?

2. At what date did you begin it?

3. (a) Are you conducting it? Alone ☐ With others ☐

IF WITH OTHERS

(b) How many? ☐

(c) What is your own status in it? _____

4. How many hours a week do you normally devote to it?

During the term _____

During the vacation _____

5. What are the sources of your information and data?
(TICK ALL APPLICABLE)

Books	☐	Government or official statistics	☐
Collected readings	☐	Dictionaries or other reference works	☐
Conference proceedings	☐	Periodicals and journals	☐
Research reports/theses	☐	Newspapers (daily or weekly)	☐
Own files	☐	Unpublished files	☐
Experiment results	☐	Survey data	☐

6. What other forms of information have you used?
(Prompt: for example, microfilm, microfiche, maps, etc.)

Office use only

7. Please rate the following sources according to their usefulness to you in your current research. If any are not available, but would be useful, please indicate in the column headed "Not available".

	Very useful	Useful	Don't know	Not useful	Not available
Periodicals, journals					
Books					
Research reports					
Conference proceedings					
Maps					
Films and other audio-visual material					
Newspapers					
Reference books					
Monographs					
Government publications and official data					
Other statistical data					
Own generated data					
Unpublished files					

8. Please rate the following types of information according to the extent of your use of them in your research.

	Not used	Don't know	Used to some extent	Used a lot
Historical or descriptive				
Statistical or numerical				
Methodological				
Conceptual and theoretical				

Office use only

9. Do you keep a personal indexing system for material relevant to your research?

YES ☐ NO ☐

10. Have you received any useful information from friends, colleagues or other personal contacts during the last year?

A lot ☐ Some ☐ None ☐

11. Have you used any of the following guides during the last year in connection with your research? (TICK EACH ONE)

	YES	NO
References and bibliographies in books and periodicals	☐	☐
Book reviews	☐	☐
Specialist bibliographies, separately published	☐	☐
Abstracting or indexing journals	☐	☐
Commercially produced information services	☐	☐
Government information services	☐	☐
Library catalogues	☐	☐
Reading lists, bibliographies, produced by library staff	☐	☐
Current awareness systems	☐	☐
SDI	☐	☐

12. Which journals do you read <u>regularly</u> in connection with your research?

---

13. Have you used any abstracting and indexing journals in connection with your research?

YES ☐ NO ☐

<u>IF YES</u>, please list them and rate them in terms of ease of use:

Title	Difficult to use	Fairly easy	Very easy
1.			
2.			
3.			
4.			

<u>IF NO</u> (i.e, <u>not</u> used any). Why not?

Questions 14-21 are the same as questions 10-17 of MODULE B if the word "teaching" is replaced by "research".

MODULE D - Basic staff personal data (general)

Office use only

Questionnaire No. _____

1. Name:

2. Institution/company:

3. Nature of institution/company's business:

4. What is the total number of employees? _____

5. Age at last birthday:

6. What is your job title?

7. Please describe the type of work you do, the nature of your duties and so on:

8. What was the last full-time educational establishment that you went to?

9. At what age, did you finish full-time education?

10. Do you have any educational qualifications? YES ☐ NO ☐

IF YES, please list them:

	Qualification	Date taken	Subject	Institution
(a)				
(b)				
(c)				

11. Do you belong to any societies, trade associations or professional bodies in connection with your work?

YES ☐ NO ☐

IF YES, please list them:

MODULE E - Information use and seeking (general)

Office use only

Questionnaire No. _____

1. Which types of information and data do you use in the course of your work? (TICK ALL THAT APPLY)

Government and other official information/statistics ☐

Trade directories ☐

Internally produced statistics ☐

Computer print-outs ☐

Internally produced documents ☐

Manuals and specifications ☐

Patents ☐

News-sheets ☐

Other (please specify) ☐

2. (a) Do you use a library in connection with your work?

Regularly ☐ Sometimes ☐ Not at all ☐

GO TO 4

(b) Which ones?

3. Do you use the library for? (TICK ALL THAT APPLY)

Consultation of books ☐

Consultation of journals, periodicals, newspapers ☐

Consultation of trade specifications, manuals, etc. ☐

Consulting reference material ☐

Requests to library inquiry and reference staff ☐

Photocopies ☐

Other (specify) ☐

Office use only

4. Do you use any of the following in connection with your work? (TICK ALL THAT APPLY)

Abstracting and indexing services ☐

Comercially provided information services ☐

Government information services ☐

Trade journals, etc. ☐

5. Do you read any journals or periodicals regularly in connection with your work?

YES ☐ NO ☐

IF YES, which ones?

6. Do you read any newspapers (whether specialized or not) in connection with your work?

YES ☐ NO ☐

IF YES, which ones?

7. Do you go regularly to trade, vocational or professional meetings, conferences, etc.?

YES ☐ NO ☐

IF YES, which ones?

8. Are there any ways in which your information requirements could be better satisfied (access to libraries, new services, better statistics, etc.)?

YES ☐ NO ☐

IF YES, in what way?

9. Have there been any occasions during the last year when your work has been held up or suffered in any way through the lack of adequate information?

YES ☐ NO ☐

IF YES, please give details:

Office use only

10. How do you keep up to date in your particular subject?

11. Do you have to deal with the public or people outside your institution?

YES ☐ NO ☐

IF YES, what type of clients are they?

Are you responsible for giving them information?

YES ☐ NO ☐

IF YES, what type?

What information sources do you use?

Could they be improved in any way?

MODULE F - Library users - self-completion questionnaire

Office use only

LIBRARY SURVEY

IMPORTANT - Please put a TICK (✓) in BOXES where the answer is YES. Leave other boxes BLANK

1. Sex Male ☐ Female ☐

2. Age Under 21 ☐ 21-34 ☐ 35-64 ☐ 65 and over ☐

3. How long have you been coming to the library?

Over 10 years ☐ 5-10 years ☐ 1-4 years ☐

Under 1 year ☐ First visit ☐

4. Are you a regular ☐ Infrequent ☐ User of this library?

5. Is today's visit for pleasure ☐ On business ☐

For some information ☐

6. Did you borrow a fictional book ☐

Borrow a non-fictional book ☐

Look up references/information ☐

Ask staff for information ☐

Use reading room ☐

Other purposes ☐

7. Do you think the library stock is

Very good ☐

Good ☐

Fair ☐

Not good ☐

Office
use only

8. Do you find the library staff helpful ☐ not helpful ☐

IF YOU HAVE ANY COMMENTS TO MAKE ON ANY ASPECTS OF THIS LIBRARY PLEASE WRITE THEM BELOW.

MODULE G - Community schedule

Office use only

LOCALITY

1. Name of locality _____

2. Is it urban ☐ Village ☐ Rural area ☐

3. How far is the locality from the following places?

   (a) Nearest road on which buses run _____km

   (b) Nearest bus stop _____km

   (c) Nearest railway station _____km

4. Is there regular transport service from the locality?

   YES ☐ NO ☐

5. How far is the nearest post office? _____km

6. How many people in the locality are

   Literate_____ Illiterate_____

LAND UTILIZATION

7. Record the number of acres in each category

Sown at least once a year	☐
Land used for pasture	☐
Land used for plantations	☐
Land used for orchards	☐
Cultivatable waste land	☐
Non-cultivatable waste land	☐
Forests	☐

8. Main crops (beginning with most common)

Crop	% of arable land cultivated	% sold	% consumed

Office use only

9. Which of the following implements are used?

Primitive plough		Tractor	
Plough - animal pulled		Truck	
Tractor-plough		Jeep	
Reaping-threshing machine		Water pump	
Ox-cart		Generator	
Horse-cart		Other (specify)	

10. How much of the following are used (in kgs./yr.)?

Natural fertilizer		Synthetic fertilizer	

11. Number of animals in the locality:

Ox		Donkey		Goat	
Buffalo		Horse		Poultry	
Cow		Sheep		Camel	

12. State the number of holdings in the locality:

Less than 1 acre		1-4 acres	
5-9 acres		10-49 acres	
50-99 acres		Over 99 acres	

MODULE H - Urban household survey

Office use only

Questionnaire No.

_____

1. How many people (including babies) in the household can read_____ cannot read _____

2. Do you regularly read any daily newspapers? YES ☐ NO ☐

IF YES, which ones?

---

3. Do you regularly read any weekly newspapers? YES ☐ NO ☐

4. Do you regularly read any magazines/journals? YES ☐ NO ☐

IF YES, which ones?

---

5. Do you listen to the radio? YES ☐ NO ☐

Watch television? YES ☐ NO ☐

Go to films? YES ☐ NO ☐

Read fiction books? YES ☐ NO ☐

Read non-fiction books? YES ☐ NO ☐

6. Do you belong to any clubs, societies or group? YES ☐ NO ☐

IF YES, which ones?

---

7. Have you visited a public library in the last 6 months? YES ☐ NO ☐

IF YES, was it to:

Borrow books? ☐

Use reading section? ☐

Ask for information? ☐

Other (specify) ☐

Office use only

8. If you needed to find out information on some common problem, what would you do?

9. If you needed some information on some social welfare problem, what would you do?

10. If you needed some information about a housing problem, what would you do?

11. Have you been to any of the following for help in the last year on any subject?

Priest	☐	Teacher	☐	Doctor	☐
Lawyer	☐	Librarian	☐	Social worker	☐
Public official	☐	Friends	☐		

MODULE I - Agricultural questionnaire for small farms/establishments

Office use only

Questionnaire No. _____

1. Name of owner/proprietor:

2. Name of area:

3. Size (in acres):

4. Main crops grown (in kgs.):

	Crop	Total (kgs.)	Amount sold (kgs.)
1.			
2.			
3.			
4.			

5. Type and number of livestock:

	Name	Number
1.		
2.		
3.		
4.		
5.		

6. Amount of fertilizer used last year:

Natural _____(kgs.) Synthetic _____(kgs.)

7. Type and number of implements used and whether owned or shared:

Type	Number	Owned	Shared
Plough (tractor drawn)			
Plough (ox drawn)			
Primitive plough			
Tractor			
Reaping/threshing machine			
Trucks/jeeps			
Ox/horse carts			
Hoes, spades, etc.			

Office use only

8. Are the main crops grown mainly:

For cash ☐ For consumption ☐

9. Do you read any printed documents such as documents, journals, government pamphlets regarding agriculture crops, techniques, etc.?

YES ☐ NO ☐

IF YES, which ones?

---

10. What is the main source of your information concerning agricultural techniques?

---

11. What about new products (such as fertilizer or equipment), how do you hear about them?

---

12. Do you use any information services?

YES ☐ NO ☐

IF YES, which ones?

---

13. Is there any way in which your information requirements could be improved?

---

14. What was the money income of the farm last year? _____

15. Do you possess a radio?

YES ☐ NO ☐

(I2)

MODULE J - Agricultural questionnaire for large establishments

Office use only

(Questions 1-7 same as MODULE I)

8. Is the establishment part of a larger organization?

YES ☐ NO ☐

9. (a) Do you regularly read any documents, journals, in connection with

(i) New techniques, products? YES ☐ NO ☐

(ii) Market and trade conditions? YES ☐ NO ☐

(iii) General agricultural information? YES ☐ NO ☐

(b) IF YES, to any of above, which ones?

---

10. Which of the following information services do you use? (TICK ALL APPLICABLE)

Trade journals ☐

Government and official documents/manuals ☐

Government and official broadcasts ☐

Commercial information services ☐

11. Is there any type of information in connection with agriculture that you would like to receive?

YES ☐ NO ☐

IF YES, which?

Office use only

12. Are there any ways in which your information requirements could be better met or improved?

YES ☐ NO ☐

IF YES, in what way?

---

13. (a) How many employees/workers do you have? ☐

(b) How many can read? ☐

14. What was the total money value of last year's production?

☐

MODULE K - Example of contact sheet

Questionnaire No. _____

Administrative area | Number | Address Serial No. | Interviews

Could you please tell me how many people live here? _____

Could you tell me each of them please?
(List respondent first)

Name	Age	Occupation	Marital status	Educational level	Relation to respondent
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

Date	Time	Result of call
1.		
2.		
3.		
4.		